

Processing Narratives By Means Of Action Languages

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In this work we design a narrative understanding system Text2ALM that can be used in Question Answering domains. System Text2ALM utilizes an action language \mathcal{ALM} to perform inferences on complex interactions of events described in texts. The system automates the conversion of a narrative text to an \mathcal{ALM} model containing facts about the narrative. We make use of the VerbNet lexicon that we annotated with interpretable semantics in \mathcal{ALM} . Text2ALM also utilizes Text2DRS system developed by Gang Ling at UNO in 2018. These resources are used to produce an \mathcal{ALM} logic program with a system description containing information on the narrative's entities, events, and their relations, as well as a history of the narrative's events. The \mathcal{ALM} logic is used in tandem with a basic commonsense library of \mathcal{ALM} modules to generate a formal structure capturing the narrative's properties. The CALM system was designed by researchers at Texas Tech in 2018 and is used to process the \mathcal{ALM} logic program. The effectiveness of this approach is measured by the system's ability to correctly answer questions from the QA bAbI tasks published by Facebook Research in 2015. The process implemented in Text2ALM was originally outlined by Michael Gelfond, Daniela Inclezan, and Yuliya Lierler in 2017 via a manual process, and this work serves as a proof of concept in a large-scale, automated environment.